

y	40	35	30	25	20	15	10	5
x	0	1	2	3	4	5	6	7

+1

Write the equation....

$$y = mx + b$$

$$m = -5$$

$$y = -5x + 40$$

$$b = 40$$

Find the term when $y = -35$

$$\begin{array}{r} -35 = -5x + 40 \\ -40 \quad \quad \quad -40 \\ \hline -75 \end{array}$$

$$\begin{array}{r} -75 = -5x \\ -5 \quad \quad \quad -5 \\ \hline \end{array}$$

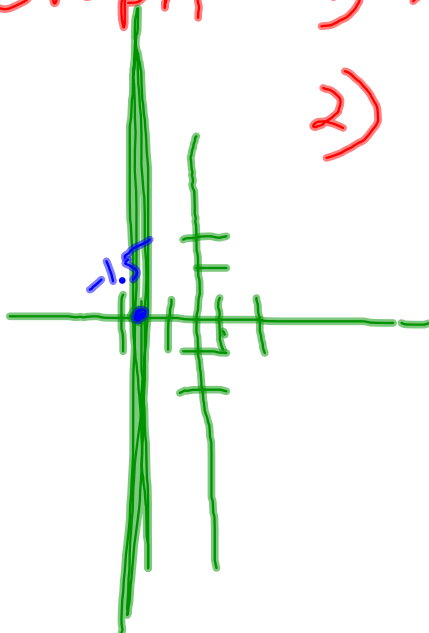
$$x = 15$$

Find the value of the 10th term

$$y = -5(10) + 40$$

$$y = -10$$

Graph : 1) $x = -1.5$



2) $y = \frac{3}{2}x - 1$



$$\textcircled{4} \quad 2x + 4y = 8$$

$$y = \textcircled{2}x + 10$$

$$\begin{array}{r} 2x + 4y = 8 \\ -2x = -2x \end{array} \quad = 8 - 2x$$

$$\begin{array}{r} 4y = 8 - 2x \\ \hline y = \frac{8 - 2x}{4} \end{array}$$

$$y = 2 \textcircled{-\frac{1}{2}}x$$

$$2 \cdot -\frac{1}{2} = -1$$

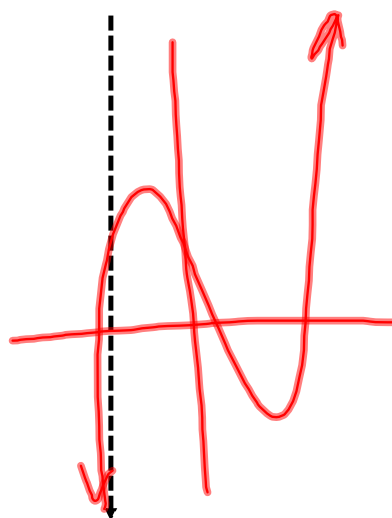
$$\textcircled{1}$$

$$\textcircled{5} \quad \begin{array}{ll} L_1 & (2,5) \quad (-2,6) \\ L_2 & (6,3) \quad (-2,-1) \end{array} \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m_1 = \frac{6-5}{-2-2} = \frac{1}{-4}$$

$$m_2 = \frac{-1-3}{-2-6} = \frac{-4}{-8} = \frac{1}{2}$$

$$-\frac{1}{4} \cdot \frac{1}{2} = -\frac{1}{8}$$



Writing the equation of lines

Given

① Slope m , y -intercept

② Slope m , 1 point on line

③ 2 pts on the line

Use

① slope-intercept form
 $y = mx + b$

② point-slope form
 $y - y_1 = m(x - x_1)$

③ solve for slope m ;
then use
 $y - y_1 = m(x - x_1)$

Example : write the equation of the line that goes through $(\overset{x_1}{5}, \overset{y_1}{4})$ and has slope of -3 .

$$y - y_1 = m(x - x_1)$$

$$y - 4 = -3(x - 5)$$

$$\begin{array}{rcl} y - 4 & = & -3x + 15 \\ +4 & & +4 \end{array} \Rightarrow \boxed{y = -3x + 19}$$

Ex] passes through $(-2, 3)$ and is perpendicular

to $y = -4x + 1$
Step 1: Figure out new slope $-\frac{4}{1}$
slope \perp is $\frac{1}{4}$
 $y = mx + b$

$$y - y_1 = m(x - x_1)$$

$$y - 3 = \frac{1}{4}(x + 2)$$

$$y - 3 = \frac{1}{4}x + \frac{1}{2}$$

+3 +3

$$y = \frac{1}{4}x + 3.5$$

$(5, -2)$

$(2, 10)$

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$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - (-2)}{2 - 5} = \frac{12}{-3} = -4$$

$$y - y_1 = m(x - x_1)$$

* pick either
point to use!

$$y - 10 = -4(x - 2)$$

$$\underset{+10}{y - 10} = \underset{+8}{-4x + 8}$$

$$y = -4x + 18$$

$$\frac{y_2 - y_1}{x_2 - x_1}$$

$$\underline{5 - 2}$$